



Making Wellhead Protection Work in MASSACHUSETTS

***A Guide for Developing Local
Groundwater Protection Controls***

December 1997

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December , 1997

Dear Reader:

Providing safe and abundant drinking water for a growing population is one of DEP's most important goals. And thanks to the efforts of water suppliers, local authorities, environmental agencies, and citizens, Massachusetts has been at the forefront of public water supply protection for more than two decades.

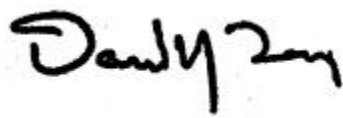
In September 1995, the U.S. Environmental Protection Agency called the Commonwealth "a model... in its commitment to comprehensive drinking water protection." In recognition, Massachusetts became the first state in the nation to receive approval of its Comprehensive Source Water Protection Plan.

At DEP, one of our responsibilities is to make sure local authorities have the tools and support necessary to maintain and improve the environmental quality of their communities. This guidebook, Making Wellhead Protection Work in Massachusetts, is one of those tools. It was created specifically to help water suppliers, planners, and citizens develop and strengthen their groundwater protection programs by providing a step-by-step process that other communities have found successful.

In working with local officials and watershed associations over the years, DEP has gained invaluable experience and a clearer understanding of the technical support needs of communities with respect to developing groundwater protection programs. This guidebook presents what DEP has learned and encourages locally directed efforts to fulfill wellhead protection requirements.

As you initiate or expand the groundwater protection programs in your community and watershed, we would appreciate your comments on this guidebook. Through cooperation and sharing of information, we can ensure that Massachusetts drinking water continues to be some of the best in the world.

Sincerely,

A handwritten signature in black ink, appearing to read "David Y. Terry", is written over a vertical line.

**David Y. Terry, Director
Drinking Water Program
Division of Watershed Management**

Acknowledgments

This guide was prepared by Department of Environmental Protection (DEP) staff and reflects the thoughtful contributions of many people.

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1 - Introduction

Using the Guide



Chances are, you are looking at the guide because your town or business is developing a new public drinking water well, you are expanding an existing well, or you have been asked to add wellhead protection regulations in your community as part of a water withdrawal permit under the Water Management Act. This guide is written specifically for public water systems that are required by the Drinking Water Regulations to adopt local regulations for wellhead protection controls. It provides a simple and direct approach for developing a wellhead protection regulatory program by walking you through a process that has been successful in other Massachusetts communities.

Information is provided to help you manage time efficiently. Drafting local regulations, developing community support, and revising a zoning map require careful planning and the full support of many individuals. The guide explains how to accomplish each part of the process; it also includes self-help tools and sample materials that can be modified for use. As you proceed, try to develop a schedule for completing the process. It will be well worth the effort because close coordination is needed between the wellhead protection schedule and the deadlines for groundwater testing in the Source Approval Process. (See Developing a Schedule, page 9.)

The guide also includes a section on "best effort," which privately-owned public water supplies, water districts, water companies, and some communities may need to fulfill when they cannot achieve full compliance with the Drinking Water Regulations (see best effort, page 42).

The work to be done is divided into six main parts:

- **Developing a schedule (p. 11);**
 - **Building local support (p. 29);**
 - **Adopting wellhead protection regulations in the form of zoning bylaws, general bylaws, or health regulations (p. 17);**
 - **Adopting a floor drain health regulation (p. 21);**
 - **Developing (and adopting) a map showing the land areas where wellhead protection bylaws are in effect (p. 41); and**
 - **Meeting best effort (p. 42).**
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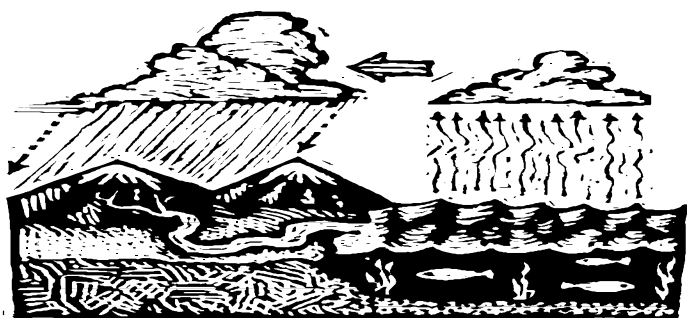
2 - Getting Started

The Big Picture

Why is Wellhead Protection Important?

The water we drink originates from either surface water bodies (lakes and rivers) or from groundwater, which is rainwater and snowmelt that percolates through soils in the unsaturated zone until reaching the water table (or saturated zone). The groundwater used for drinking may travel long distances underground before it is pumped from a well and distributed through pipes to homes and businesses.

When rainwater travels overland as runoff and downward into the subsurface, it can become contaminated. The risk of groundwater contamination is greater in developed areas, where water has the potential to come in contact with pollutants as it travels toward drinking water wells. Generally, the closer the source of contaminants, the greater the risk.



Certain pollutants, such as nitrates, road salts, pesticides, bacteria, viruses, organic compounds, and metals, are recognized drinking water pollutants. Consequently, land activities near a drinking water well that use, store, or generate these materials have the

potential to threaten that water supply.

Massachusetts public drinking water wells are susceptible to contamination for a variety of reasons. Notably, the state is densely populated and it has a long history of industrial growth and development. Heavy urbanization such as this has been linked to groundwater contamination. In addition, the groundwater-bearing aquifers in Massachusetts tend to be relatively shallow, which means that contaminants may travel only a short distance to groundwater. DEP records show that at least 175 public drinking water wells have been contaminated to the extent that closure of these wells was necessary.

Although it may seem obvious that threatening land uses should be sited away from groundwater wells, it is seldom easy to prohibit these land uses entirely, except in very rural areas. Restricting private land use is among the most sensitive issues between landowners and government. Therefore, the regulator imposing restrictions needs to be sure that the land area restricted is essential for the protection of the drinking water supply.

What Areas Should be Protected?

Wellhead protection is needed for those areas around the well where the surface and groundwater are contributing to (i.e. the recharge area) the source of water that is being pumped from the well. In Massachusetts, the land area, (contributing or recharging water to the well), is divided into specific zones which are given different levels of protection. Zone I is the area closest to the well. Typically, Zone I is a circular land area around the well that is defined by a 100 to 400 foot radius, depending on the pumping rate of the well. Land use in this area is restricted to water supply-related activities only.

Zone II is a recharge area around a well that is determined by means of hydrogeologic modeling studies. The Zone II boundary delineations must be approved by DEP. Certain land uses in the Zone II of new public wells, expanded public wells, or public wells subject to Water Management Act permits must be prohibited or restricted through local regulatory controls that are consistent with the Drinking Water Regulations (310 CMR 22.00).

In the cases where hydrogeologic modeling studies have not been done and there is no approved Zone II, an Interim Wellhead Protection Area (IWPA) is put in place to cover an area around a public well. The area is defined by a radius, ranging from 400 feet to one half mile, depending on the pumping rate of the well. Many communities choose to enact protective regulations in IWPA's for their wells. For additional information on Zone I, Zone II, or IWPA, see the definitions in the glossary and the Drinking Water Regulations (Appendix A.2 and A.10).

New Susceptibility Assessment Requirements

Water suppliers should be aware that the federal Safe Drinking Water Amendments of 1996 require states to delineate the recharge areas for all sources and to conduct susceptibility assessments within these areas by 2001.

What Needs to be Done

When are Wellhead Protection Controls Required?

All wells - The Massachusetts Drinking Water Regulations (310 CMR 22.00) apply to public water systems serving 25 or more people. Public water suppliers must own or control the Zone I for their wells under 310 CMR 22.21 (1) and 22.21 (3)(b).

Large new wells - Public water suppliers proposing new wells that will pump 100,000 gallons a day or more will undertake the Source Approval Process, which includes a Zone II delineation and adoption of municipal land use controls in accordance with 310 CMR 22.21(2) to protect the new well.

Wells with Water Management Act (WMA) Permits - The Water Management Act (310 CMR 36.00) regulates water withdrawals in excess of 100,000 gallons per day (gpd). New water withdrawals and increased withdrawals of 100,000 gpd or more are required to have a Water Management Act water withdrawal permit. However, water withdrawals in existence between 1981 to 1985 are “registered,” and not subject to WMA permit requirements, such as wellhead protection.

All public groundwater supplies in the WMA permit are subject to 310 CMR 36.28, which requires delineation of the Zone II and adoption of municipal land use controls, according to 310 CMR 22.21(2). A Zone II delineation is required within 3 years of the WMA permit. Adoption of local controls is due within 2 years of the DEP approval of the Zone II for existing sources.

Private wells - Local boards of health regulate private wells. These wells are not subject to the wellhead protection requirements in the Drinking Water Regulations.

What Controls Must be Adopted?

The Drinking Water Regulations (310 CMR 22.21(2)) specify the threatening land uses that must either be prohibited or restricted within the Zone II. Communities may be more restrictive, both in terms of the area covered and in the controls adopted.

The prohibited or restricted land uses in the Zone II included in the Drinking Water Regulations are:

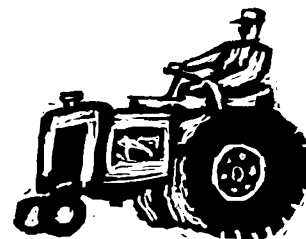
Prohibited Land Uses



- **non-sanitary wastewater disposal to the ground**
- **landfills and open dumps**
- **automobile graveyards/junkyards**
- **stockpiling/disposal of snow or ice that contains deicing chemicals**
- **facilities that generate, treat, store, or dispose of hazardous waste (Note: VSQGs are exempt.)**
- **petroleum, fuel oil and heating oil bulk stations and terminals**
- **wastewater residual landfills**

Restricted Land Uses

- **storage of sludge, septage, deicing chemicals, animal manure**
- **commercial fertilizers, hazardous materials, and petroleum products**
- **earth removal activities**
- **impervious surfaces greater than 15% or 2500 square feet**
- **existing floor drains in commercial and industrial process areas discharging to the ground**



Other DEP programs also regulate certain threatening land uses, such as septic systems and landfill siting, to protect drinking water wells. In some of the environmental regulations, activities are controlled within the Zone II area around a groundwater well. In others, protection is required in the Zone I or the Interim Wellhead Protection Area (IWPA).

Source Protection Savings

Systems that meet water quality, source protection and land use criteria are eligible for cost saving monitoring waivers under the Safe Drinking Water Act Monitoring Waiver Program.

Public water systems are required to monitor for drinking water contaminants routinely, in accordance with standards set by the U.S. Environmental Protection Agency. DEP enforces these requirements and determines eligibility for monitoring relief through the Monitoring Waiver Program. Monitoring waivers are given to public water systems with approved source protection, such as zoning bylaws which prevent the development of threatening land uses around drinking water supplies.

Local Protection Planning

DEP encourages communities to balance resource protection with economic growth and development. One way to do this is to set up a local committee which is represented by all voices. Include your business community as well as your local civic and watershed groups. This might be an appointed committee or an ad hoc group coordinated by your town or city planner, regional planning agency, or watershed association. Your committee's primary task may be to see an Aquifer Protection District Bylaw adopted by town meeting, or it might have several tasks. Be sure to include a public education campaign well in advance of public hearings on proposed zoning articles. (See Chapter 4: Building Local Support.) Early on, municipal agents (such as the water supplier, planner, planning board, health agent, board of health, and

State Controls Within Zone IIs

Many state programs provide more stringent requirements within the Zone II or IWPA. These include: stricter cleanup standards for hazardous waste sites, prohibitions on landfill siting, and limitations on septic system density within Zone II and on siting septic systems within Zone II. (See Appendix p. A.11.)

possibly selectmen) should make a commitment to the program and develop a plan for completing the wellhead protection process. An effective plan divides key activities into specific tasks, identifies the individuals responsible for each task, and includes a task completion schedule that takes into account the wellhead process deadline.

A successful municipal program depends on a coordinated effort by town agencies in order to show progress towards task completion and to attain town meeting or city council support for the land use controls. (See Developing a Schedule, p. 11.)

Growth Planning

Prior to planning for wellhead protection, and before a decision is made to add a well or increase a municipality's water resources, a community

Success Story

should plan for growth to encourage economic development that protects environmental quality and preserves environmental resources. Planning

Foxboro Water Department

Foxboro has a comprehensive wellhead program that requires compliance with state protection regulations for all 13 wells. The program includes a unique groundwater monitoring program based on potential contaminant sources and hydrogeology, GIS mapping, as well as a substantial budget for evaluation of MEPA projects and waste sites in the wellhead protection district. Foxboro's residents value their drinking water and it shows!

for growth allows a municipality to promote patterns of residential and commercial development that minimize impacts on the environment. Poorly planned growth can lead to development in areas that should be protected, such as recharge areas and watersheds of ground and surface water supplies. Planning also should consider alternatives which may help to meet water demand, such as water conservation, metering, and leak detection.

Executive Order 385

recognizes the importance of coordinated growth planning in the Commonwealth. The Order asks state agencies to consider local and regional growth plans and to coordinate with local entities in the development of plans for regional infrastructure. There also is grant support for local initiatives to develop and implement plans. Wellhead protection planning is one facet of a comprehensive growth plan, and it complements ongoing local planning efforts.

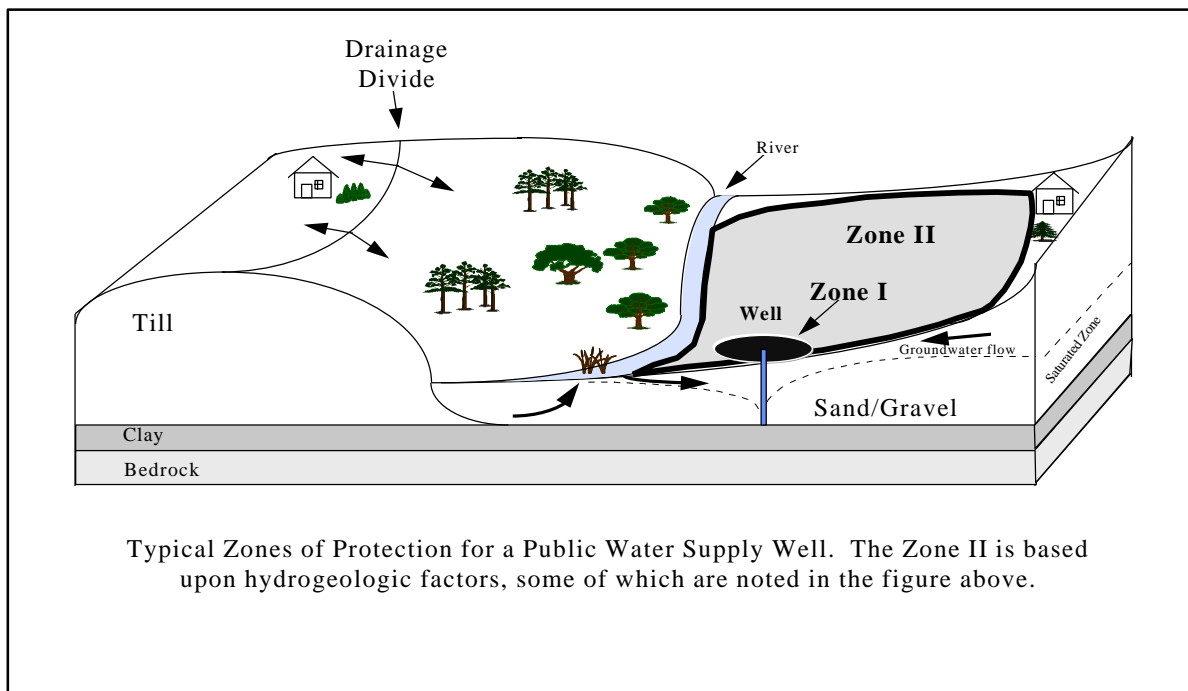
Beyond the Wellhead Guide

A community with a fully developed wellhead protection program will incorporate many strategies that go beyond the regulatory requirements. Nonregulatory strategies also can significantly enhance wellhead protection. Some of these

strategies include: land acquisition, water quality monitoring, conservation restrictions, hazardous waste collection, public education, and contingency planning.

These strategies are being applied by watershed teams as part of the Massachusetts Watershed Initiative, which combines the efforts of federal and state environmental agencies, municipal government, business community, watershed associations, planning agencies, civic groups, and citizens. The public water supplier will find it helpful to coordinate wellhead protection work with the watershed team assigned to the area. (See Appendix p. 9.) Teams are taking responsibility for managing, coordinating, and integrating human resources to protect or improve water quality. To achieve their goals, teams will undertake a wide range of activities, such as planning for the protection of groundwater supplies and other resources, identifying areas for land acquisition, and managing cumulative impacts. These activities may be particularly valuable to public water suppliers, who have responsibility for protecting drinking water supplies.


Wellhead protection also is appropriate for private wells. Although local regulations for protecting private wells are not covered here, DEP supports community efforts to strengthen wellhead protection for these supplies.



Example: Wellhead Protection Delineation

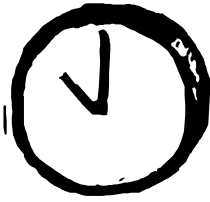
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Water Supplies:
Groundwater well
Zone II



Developing a Schedule

Scheduling Issues to Consider



Setting the wellhead protection process in motion can be very challenging without a clear understanding of when tasks need to be accomplished and the length of time it takes to complete them. For example, if you are working in a town, changes to your zoning bylaws require town meeting approval, and town meetings usually occur in spring and fall. Wellhead protection bylaws need to be complete when town meeting warrants are prepared.

Otherwise, a community may have to wait six months or more until the next town meeting to obtain approval. Knowing the process in advance can save you time.

Municipal officials, such as water suppliers, planners, health boards, and selectmen should develop a schedule early in the wellhead protection process. To be an effective tool, it should divide the six main parts of the wellhead process (See Using the Guide, p.1) into very specific tasks. The people responsible for completing each task should be identified, and the schedule for completing tasks should be well thought out, taking into consideration the time necessary to build support for the community's bylaws at town meeting and the need for the new or increased groundwater supply.

Completion of the wellhead protection process in a timely fashion is important to a municipal or private water supplier for several reasons. The most obvious is the value of a usable drinking water supply to a community. Development of a groundwater resource into an approved public drinking water supply can cost several million dollars. If the groundwater becomes contaminated, the cost of cleanup can be millions more, and the water may be unavailable for public use for many years. Therefore, towns and private water suppliers need to put wellhead protection land use controls in place to preserve the groundwater resource as soon as possible.

The Drinking Water Regulations require municipalities to adopt local regulatory controls before DEP approves the use of the groundwater as a public drinking water supply. In other words, local bylaws covering the wellhead protection areas (for wells of 100,000 gpd or more) must be adopted before a new well is used or an existing well is expanded. Water Management Act water withdrawal permits also are conditioned on completion of the wellhead protection process.

One way to keep track of your progress toward completion of the process is to link wellhead protection tasks to the Source Approval Process or Water Management Act water withdrawal permit process, whichever applies. Be sure you have selected the correct program (see p. 5). Although the requirements are the same, the two programs have different timeframes. The following text explains when the wellhead tasks should be done to coordinate with the steps in the Source Approval and Water Management permit processes. (If the Water Management Permit Process applies to you, please skip the following section on the Source Approval Process and proceed to the Water Management Permit Process on page 14.)

Source Approval Process

Wellhead protection is required as part of the Source Approval Process whenever a new public water supply is proposed that will pump 100,000 gallons or more per day. In scheduling the required tasks, the water supplier and planning department need to coordinate wellhead protection activities with the source development work in this process.

Below are the steps in the Source Approval Process. The headings for each step correspond with well development and Zone II delineation. The wellhead protection activities that need to be scheduled are listed below each step to show you when wellhead tasks should be completed.

***Is this a new or expanded well?
Use Source Approval Process Schedule.***

***Is wellhead protection required by a Water
Management Act water withdrawal permit?
Use Water Management Schedule.***

(For more details on developing a new groundwater source, obtain a copy of the most recent edition of the Guidelines and Policies for Public Water Systems from the State House Bookstore.)

Step 1

Request for Site Exam

1) Become familiar with the wellhead protection process requirements in this guide. NOTE: Private water suppliers and water districts are subject to “best effort” requirements in all towns within the Zone II boundary (see best effort, p. 42).

2) The Guidelines require a strategy for meeting wellhead protection, including at least:

a) Names, titles, and phone numbers of lead local contacts who will be:



Make sure this information is submitted with the Request for Site Exam or your application will be incomplete.

- **pursuing changes to the board of health (BOH) and/or zoning regulations,**
- **pursuing wellhead protection with neighboring communities, and**
- **implementing existing controls that meet DEP requirements.**

b) Timeframe for drafting any needed changes:

- **to bring local controls up to DEP requirements,**
- **for bringing regulatory changes to planning board, board of health, and town meeting, and**
- **for developing a public education plan that will ensure success.**

c) Proposed schedule and contacts for ensuring that protection is put in place where the Zone II extends into a neighboring community; and

d) Any other relevant control measures (existing or proposed).

Step 2

Pumping Test Proposal

3) A draft of the proposed zoning and non-zoning controls (zoning bylaw, general bylaw, or health regulation) must be submitted to the Department for review. The draft should be consistent with the requirements set forth in 310 CMR 22.21(2) of the Drinking Water Regulations. Use the “Land Use Control Cross Reference Form” on pages 27 and 28 to help you.

4) Water suppliers subject to the “best effort” criteria, as described in Section 4.6 of the Guidelines, should submit a schedule for meeting the best effort requirements.

Step 3

Source Final Report (DEP approval of this report will include approval of the Zone II delineation.)

5) The final draft of proposed controls must meet DEP regulatory requirements.

Step 4

Prior to Submittal of Well Construction Plans

6) Obtain necessary approvals for land use controls (town meeting and State Attorney General).

7) Change zoning map so that the wellhead protection district covers the approved Zone II and obtain necessary approvals.

8) Submit the following documents to DEP:

- **approved bylaws (with approval stamps and dates);**
- **zoning map with the wellhead protection overlay; and**
- **“best effort” documents.**

DEP approval is needed to verify full compliance with wellhead protection controls, and to bring the well on line.



Water Management Permit Process

Water Management Act, Water Withdrawal Permit

The Water Management Act (WMA) permits for increases in withdrawals of 100,000 gpd or greater from existing sources require a delineation of the Zone II and specify a date by which wellhead protection controls must be adopted.

The Water Management Act permit application must be submitted to DEP with the Source Final Report for a new well. For existing wells, the wellhead process tasks will need to be completed by the date specified in the WMA permit. This date will either be two years from the date of permit issuance (if a Zone II has already been approved) or two years after the Zone II approval date. Coordination of wellhead activities with hydrogeologic work is not necessary.

Developing Controls

1) Become familiar with the wellhead protection process requirements in this guide. NOTE: Private water suppliers and water districts or water companies are subject to “best effort” requirements in all towns within the Zone II boundary (see best effort, p. 42).

2) The Guidelines require a strategy for meeting wellhead protection, including at least:

a) Names, titles, and phone numbers of lead local contacts who will be:

- **pursuing changes to the board of health (BOH) and/or zoning regulations,**
- **pursuing wellhead protection with neighboring communities, and**
- **implementing existing controls that meet DEP requirements.**



b) Timeframe for drafting any needed changes:

- to bring local controls up to DEP requirements,
- for bringing regulatory changes to planning board, board of health, and town meeting, and
- for developing a public education plan that will ensure success at town meeting.

c) Proposed schedule and contacts for ensuring that protection is put in place where the Zone II extends into a neighboring community; and**d) Any other relevant control measures (existing or proposed).**

3) A draft of the proposed zoning and non-zoning controls (zoning bylaw, general bylaw, or health regulation) must be submitted to the Department for review. The draft should be consistent with the requirements set forth in 310 CMR 22.21(2) of the Drinking Water Regulations. Use the “Land Use Control Cross Reference Form” on pages 27 and 28 to help you.

4) Water suppliers subject to the “best effort” criteria, as described in Section 4.6 of the Guidelines, should submit a schedule for meeting the best effort requirements.

5) The final draft of proposed controls must meet DEP regulatory requirements.

**Final Submittal**

6) Obtain necessary approvals for land use controls (town meeting and State Attorney General).

7) Change zoning map so that the wellhead protection district covers the approved Zone II and obtain necessary approvals.

8) Submit the following documents to DEP:

- approved bylaws (with approval stamps and dates);
- zoning map with the wellhead protection overlay; and
- “best effort” documents.

DEP approval is needed to verify full compliance with wellhead protection controls.

Success Stories

Canoe River Aquifer Advisory Committee (CRAAC)

One of the most effective ways to protect a regional resource is to develop formal ties among the communities and work cooperatively on resource protection. The CRAAC, is a model of *Cooperative Stewardship*. Five member towns - Easton, Norton, Foxboro, Mansfield, and Sharon - used grant money to study, map, and develop a model watershed protection plan. They hold a yearly Canoe River Awareness Day with canoe races. Their innovation includes classes on land trusts and underground storage tanks (USTs), school programs, and a very competitive drinking water week program.

Town of Brewster

Town officials in Brewster have taken proactive steps to address increasing demands for water. In order to protect existing and future drinking water supplies, the town adopted a comprehensive *Groundwater Protection District Bylaw* covering the Zone II areas of its four wells and those wells belonging to Harwich and Dennis that have portions of the Zone II in Brewster. In 1988, the town formed a *Water Quality Review Committee* consisting of the building commissioner, health director, and representatives from selectmen, conservation commission, planning, health, and water boards. Any land use that requires a building permit or involves the handling, storage, or transportation of hazardous or toxic materials must meet specific environmental performance standards and obtain a "water quality compliance certificate" from that committee.



3 - Adopting Controls

Regulatory Land Use Control Options

Choosing the Right Controls

Zoning bylaws, general bylaws (local bylaws or ordinances), and health regulations are the regulatory options available to Massachusetts communities to protect groundwater supplies.

If your city or town has wellhead protection regulations, you need to obtain a complete copy and compare them with the Massachusetts Drinking Water Regulations (Appendix, p. A.13) to see if there are omissions in the local regulations and language that differs from the state regulations. The cross reference form in this chapter (page 24) should be used for comparing the two sets of regulations. By filling out the form, you will reveal the areas where local regulations need to be revised for consistency with the state requirements.

On the other hand, if your city or town does not have any wellhead regulations, you need to decide whether to use regulatory controls for existing and new development or regulatory controls that cover new development only. Both options have strengths and weaknesses which must be weighed in making this decision. The discussion that follows describes some basic issues to consider. (See also Summary of Wellhead Protection Options, p. 20.)

Zoning Bylaws - Municipalities use zoning bylaws to prohibit, restrict, or permit new land use activities in certain, specified zoning districts. Zoning bylaws address future land use activities only; existing land uses are grandfathered, and therefore, are not covered by zoning bylaws. For wellhead protection, communities can use

Bylaws should not exempt municipal or residential uses from groundwater protection requirements.

overlay districts such as groundwater protection for Zone II, water resource protection, or aquifer protection. These areas are superimposed over mapped zoning districts. The wellhead protection bylaws apply within overlay districts, as do the underlying zoning controls; however, wellhead controls supersede the underlying zoning when more stringent. Within the overlay district, future land uses may be controlled through prohibitions, performance standards, or special permits. Zoning bylaws require town meeting or city council adoption.

General Bylaws - A general bylaw regulates new and existing activities everywhere in a city or town; however, it also can be adopted within a specific district. General bylaws require town meeting or city council adoption and are good regulatory tools for controlling the storage of hazardous and toxic materials. Boards of health (BOHs) are often designated to enforce these bylaws.

Special permits must not allow activities that are prohibited by the Massachusetts Drinking Water Regulations.

Health Regulations - Health regulations cover new and existing developments and do not require town meeting or city council approval. As their name suggests, health regulations are adopted by local BOHs, which oversee a variety of risk-related health issues. In view of BOH responsibilities, health regulations are well-suited for restrictions on high-risk land use activities, such as the storage of fuel and hazardous material. In addition, health regulations are effective floor drain controls. (See *Developing a Floor Drain Regulation*, p. 21.)

When determining regulatory options, communities should evaluate their current and future land uses. If the Zone II recharge lies in an area that has little or no development, zoning bylaws will prohibit future high risk land uses in this area. On the other hand, if the Zone II is located in an area that is moderately or highly developed, health regulations or general bylaws can address the existing threats to drinking water quality.

Municipalities may not:

- Regulate hazardous waste transport
- Regulate pesticides - Pesticide Control Act
 - Prohibit animal feedlots

These are regulated at the state and federal level.

In most cases, communities find that a combination of health regulations and zoning bylaws works best in protecting groundwater quality. For example, a zoning bylaw can be used to prohibit the siting of a hazardous waste facility, while a health regulation can be adopted to restrict the storage of hazardous materials. Very often, the Zone II will have existing businesses which generate hazardous waste or use hazardous materials, such as dry cleaners, photo labs, print shops, or medical facilities. Since these activities are grandfathered, the board of health can adopt regulations for controlling the quantity and types of hazardous materials stored, as well as the manner in which the hazardous waste is disposed.

The Appendix includes a Model Zoning Bylaw, a Model Health Regulation, and a Model Floor Drain Regulation. These models can be modified and used to comply with the requirement for land use controls in wellhead protection areas.



Adopting regulatory controls is only the beginning of the wellhead protection process. Implementation and enforcement of the regulations are essential to the protection of a groundwater drinking supply. Controls will be effective only when municipalities administer them appropriately.

Alternative, nonregulatory activities that enhance local regulation should also be implemented. Although this guide focuses on development of a groundwater protection program through local regulation, municipalities should seek opportunities to apply other strategies to protect their water resources, such as land acquisition, conservation restrictions, water quality monitoring (beyond regulatory requirements), best management practices (BMPs) (e.g. hazardous waste collection and other source controls), public awareness programs, contingency planning, and growth planning.

This wellhead protection guide also may be used by municipalities for existing wells and wells not subject to the Drinking Water Regulations. For detailed information on best management practices, see the following publications:

- 1. Boutiette, L.N. and C.L. Duerring. 1993. "Massachusetts Nonpoint Source Management Manual, 'The Megamanual,' A Guidance Document for Municipal Officials." Massachusetts Department of Environmental Protection, Office of Watershed Management, Boston.***
- 2. Massachusetts Department of Environmental Protection and Office of Coastal Zone Management. 1997. "Stormwater Management Handbooks, Volume 1 and 2." Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Boston.***
- 3. Massachusetts Department of Food and Agriculture and Office of Coastal Zone Management. 1996. "On-Farm Strategies to Protect Water Quality." New England Small Farm Institute, Belchertown.***

DEP recommends an exemption of "very small quantity hazardous waste generators" (VSQGs) because it can be very difficult to enforce a prohibition.

VSQGs include: dentists, medical offices, small scale printers, and other types of service operations.

Summary of Wellhead Protection Options

Table 3.1 - Types of Regulations

Statutory Authority	Zoning (MGL c. 40A)	General (MGL c.40, s. 21)	Board of Health - Regulation (MGL c. 111, s. 31 and MGL c. 40, s. 21)
Required Vote	<ul style="list-style-type: none"> • <u>Zoning Bylaw</u> 2/3 vote: Selectmen and 2/3 vote: Town Meeting • <u>Zoning Ordinance</u> 2/3 vote: City Council 	<ul style="list-style-type: none"> • <u>General Bylaw</u> Majority vote: Selectmen and Town Meeting • <u>General Ordinance</u> Majority vote: City Council 	<ul style="list-style-type: none"> • Majority vote: BOH
Pros and Cons	<ul style="list-style-type: none"> • Promotes public participation and community awareness • Requires staff to develop overlay map • Amendment process can be lengthy, 1- 3 years • Does not control existing uses 	<ul style="list-style-type: none"> • Requires public participation • Promotes community awareness • Controls existing uses 	<ul style="list-style-type: none"> • Expedient adoption process • Strong enforcement authority • Does not require citizen approval • Controls existing land uses
Other Requirements	<ul style="list-style-type: none"> • Planning Board public hearing • Approval by Attorney General 	<ul style="list-style-type: none"> • Notification in local newspaper • Approval by Attorney General 	<ul style="list-style-type: none"> • Notification in local newspaper

Floor Drain Controls

Developing a Floor Drain Regulation



An opening in a floor that is connected by pipes to a dry well, septic system, or subsurface leaching pit can be a pathway for pollutants into the environment. Drains in the ground floor of industrial and commercial process areas are a concern because certain materials used may contaminate the soil and groundwater. Facilities that store hazardous materials and waste are also a threat when located near drinking supplies. In fact, industrial floor drain discharges to the ground are a suspected source of contamination in several former public drinking water supplies in Massachusetts. The Drinking Water Regulations address this issue by prohibiting both existing and new floor drain discharges to the ground without a DEP permit.

Cities and towns have the option of adopting either a general bylaw or a health regulation to prohibit existing and new floor drains in wellhead protection areas. It also may be possible to modify an existing hazardous material regulation to include a floor drain prohibition. However, DEP recommends a health regulation because boards of health (BOHs) have the credentials to implement and enforce the floor drain controls successfully. The BOH should work with the planning board and water supplier to ensure regulatory consistency.

Implementation and enforcement of a floor drain regulation is a separate and distinct requirement from the other land use prohibitions and restrictions. The Massachusetts Drinking Water Regulations give communities the following alternatives for prohibiting existing floor drains. They must either be sealed in accordance with the

state plumbing code (248 CMR 2.00), connected to a municipal sewer system (including permits and pretreatment, as appropriate), or connected to a holding tank that meets all DEP regulations and policies. This is where the authority of the BOH becomes important.

Enforcing the state plumbing code
is not enough...

The code covers oily and liquid hazardous waste only. This leaves out many classes of materials that threaten drinking water!

In addition to adopting a regulation, DEP recommends that a community

launch a floor drain program to educate facility owners about the problem, and to provide technical assistance that will bring facilities into compliance with the regulation. Additional information regarding the development of a local floor drain program can be ordered from DEP (p. 39).

Tips for Drafting Local Controls

DO's



Do involve the planning board, board of health, building inspector, water department, conservation commission, local officials, and citizen groups when drafting land use controls.



Do consult with your town counsel prior to the adoption of local controls.



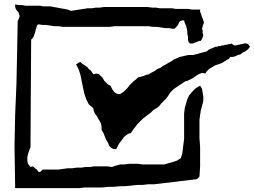
Do refer to DEP's Model Wellhead Protection Bylaw, Model Floor Drain Regulation and Model Groundwater Protection Health Regulation when drafting controls. (See Appendix p.22-39.)



Do consider general or zoning bylaws whenever possible since the required town meeting promotes public participation and awareness of wellhead protection issues.



Use the cross reference form to check local bylaws for consistency with the state land use control requirements, and for communication with local boards.



DON'Ts



Do not define wellhead protection overlay districts as "Zones I, II, or III" unless they are the actual boundaries that have DEP approval. The terms define particular areas and impl DEP review and approval.



Do not confuse the terms "hazardous material" with "hazardous waste." Hazardous material is virgin material that has not been used. Hazardous waste is a byproduct that must be disposed according to state regulations (310 CMR 30.00).



Do not regulate pesticides, animal feedlots, or the transport of hazardous waste. This exceeds local authority and will not be approved by the Attorney General.



Do not allow a special permit for activities prohibited under DEP regulations.



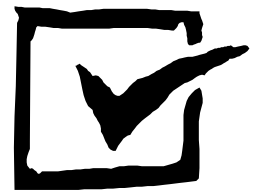
Do not prohibit the storage of hazardous materials in Zone II recharge areas. Some chemicals used for water supply treatment are classified as hazardous materials and must be stored on site.



Do not limit yourself to using the State Plumbing Code to enforce the floordrain requirement. The State Plumbing Code only addresses facilities that generate liquid hazardous waste.



Do not exempt municipal or residential uses from groundwater protection requirements. These land uses have the potential to contaminate groundwater.



Potential Sources of Groundwater Contamination

Higher Risk

Airports-Commercial

(maintenance & repair, fuel storage)

Automotive Repair Shops

Automotive Body Shops

Boat Builders & Refinishers

Bus & Truck Terminals

Chemical Manufacturers

Dry Cleaners

Fuel Oil Distributors

**(product storage, equipment
maintenance & storage)**

Furniture Strippers, Refinishers

Industrial Manufacturers

Junkyards & Salvage Yards

Landfills & Dumps

Machine Shops

Metal & Drum Cleaning/

Reconditioning

Paint Shops

Photographic Processors

Printer & Blueprint Shops

Railroad Yards

**Repair Shops (engines,
appliances, etc.)**

Rust Proofers

Service Stations (gas stations)

Underground Storage Tanks (USTs)*

**Waste Storage, Treatment & Recycling
(hazardous & non-hazardous)**

Moderate Risk

Above Ground Storage Tanks *

Agricultural Related Activities

**(pesticide & fertilizer storage
& application, machinery
maintenance & fueling)**

Asphalt, Coal, Tar, & Concrete Companies

Dredge Disposal Sites

Farm Animal Feed Lots - Waste*

Home Heating Oil Tanks*

Lumber Yards*

Medical Facilities (hospitals, clinics, & labs)

Military Facilities (past & present)

Nursing Homes

Pipelines (oil & sewer)

Prisons

Research Laboratories

Road Salt Storage

Sand & Gravel Mining Operations*

Schools, Colleges, & Trade Centers

Septic Systems*

**Wastewater Treatment Plants (past
or present sludge disposal)**

Wood Preservers

Lower Risk

**Animal Care & Holding Areas (stables,
kennels, & pet shops)**

Auto Parts Stores

Beauty Salons

Construction Sites

**Food Processors (meat packers, dairies,
& bakeries)**

Funeral Homes & Cemeteries

Golf Courses

deicing,

Hotels & Motels

Land Application of Sewage Sludge

Laundromats

Nurseries

Residential Development

Restaurants & Taverns

Retail Shopping Centers, Malls

Sawmills

**Stormwater Management Facilities
(leaching systems)**

Transmission Line Right-of-Way

Transportation Corridors (road

materials transport)

Utility Substation/Transformers

Waste Transfer Stations

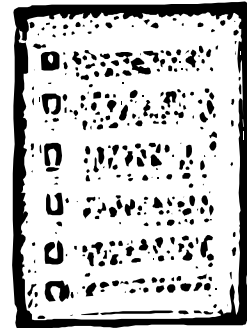
**Adapted from Rhode Island Department of Environmental Protection Wellhead
Protection Inventory Guide, December 19, 1992.**

Cross Reference Guidance

Refer to this section when using the “Land Use Control Cross Reference Form” to evaluate bylaws and regulations with the Massachusetts Drinking Water Regulations, 310 CMR 22.21(2).

A cross reference form is provided on p. 27 and 28. A copy of the completed form should be submitted to DEP at the time of the pumping test proposal. (See Developing a Schedule, Step 2, Pumping Test Proposal, p.13.)

The land use prohibitions and restrictions in 310 CMR 22.21(2) are listed in the left column of the form. The right column is to be filled in with notations that identify local controls which comply with state regulations, and controls which need to be amended for consistency with these requirements. If you are not sure whether or not a local control complies with 310 CMR 22.21(2), consult your city or town counsel, planning board, or planning department.



Step 1

Compare and Evaluate

Compare existing land use controls with the prohibitions and restrictions in 310 CMR 22.21(2) and fill out the right column of the cross reference form, according to the following directions.

If a local land use control complies with the language in 310 CMR 22.21(2), write the regulation and citation in the right column (i.e. Aquifer Protection District Bylaw, Section 2(a)(i)). If all the land use controls comply with the state regulations, proceed to Step 3 below.

If any of the local land use controls are incomplete or less restrictive than 310 CMR 22.21(2), you will need to amend them to meet the state requirements. The appropriate boxes in the right column should include an explanation of the changes that are needed.

If there are no local land use controls, it will be necessary to draft bylaws or regulations consistent with the wellhead protection requirements in 310 CMR

22.21(2). In this case, it will not be possible to fill out the form until proposed bylaws are drafted. This must be done as soon as possible because the controls should be submitted to DEP with the pumping test proposal.

Step 2

Draft Amendments



- **Research the land use control requirements in the Annotated Drinking Water Regulations. Use (as appropriate) the language in the Model Wellhead Protection Bylaw and Model Health Regulation in drafting your wellhead protection regulations. These tools are provided in the Appendix, p. A. 25 - A.42.**
- **Work with the appropriate local authorities to draft new bylaws or amendments to existing bylaws and to build local support for their adoption. (See Chapter 4 - Building Local Support.)**

Step 3

Finalize and Submit Documents

- **Update the cross reference form, where applicable. Add information, such as the citation and language for proposed and amended controls.**
- **Submit a copy of the completed form to the regional DEP office. Include any draft amendments and existing controls (zoning bylaws, general ordinances, and health regulations). Keep a copy of the form to monitor the bylaw development and adoption process.**



Land Use Control Cross Reference Form

For compliance with Massachusetts Drinking Water Regulations, 310 CMR 22.21(2), Revised March 1997

A. The following land uses are prohibited in the DEP approved Zone II	Existing (E), and proposed (P) land use controls for the Town/City of _____
1. landfills and open dumps	
2. landfills receiving only wastewater residuals and/or septage residuals	
3. automobile graveyards and junkyards	
4. stockpiling and disposal of snow and ice containing deicing chemicals brought in from outside the Zone II	
5. petroleum, fuel oil, heating oil bulk stations and terminals	
6. non-sanitary wastewater treatment or disposal works that are subject to 314 CMR 5.00, except the following:	
a. the replacement or repair of an existing system that will not result in a design capacity greater than the design capacity of the existing system; and	
b. treatment works approved by the DEP designed for the treatment of contaminated groundwater	
7. facilities that generate, treat, store, or dispose of hazardous waste subject to MGL 21C and 310 CMR 30.000 as amended, except for:	
a. very small quantity generators as defined under 310 CMR 30.000;	
b. household hazardous waste collection centers and events operated under 310 CMR 30.390;	
c. waste oil retention facilities required by MGL Chapter 21, Section 52A; and	
d. water remediation treatment works approved by DEP for the treatment of contaminated ground or surface waters.	
8. any floor drainage systems in existing facilities, in industrial or commercial process areas or hazardous material and/or hazardous waste storage areas, which discharge to the ground without a DEP permit or authorization <i>Note: Floor drain controls must be a Health Regulation or General Bylaw.</i>	

<i>B. The following land uses are prohibited unless designed in accordance with the specified performance standards</i>	<i>Existing (E), and proposed (P) land use controls</i>
1. storage of sludge and septage, unless such storage is in compliance with 310 CMR 32.30 and 310 CMR 32.31	
2. storage of deicing chemicals, unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate	
3. storage of commercial fertilizers, unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate	
4. storage of animal manures, unless such storage is covered or contained	
5. storage of liquid hazardous materials, as defined in MGL. c. 21E, and/or liquid petroleum products, unless storage is above ground level, and on an impervious surface, and either:	
<p>(a) in container(s) or above ground tank(s) within a building, or</p> <p>(b) outdoors in covered container(s) in an area that has a containment system designed and operated to hold either 10% of the total possible storage capacity of all containers, or 110% of the largest container's storage capacity, whichever is greater.</p>	
6. the removal of soil, loam, sand and gravel within four feet of the historical high groundwater table elevation	
7. land uses that result in rendering impervious more than 15% or 2500 square feet of any lot, whichever is greater, unless a system for artificial recharge of precipitation is provided that will not result in the degradation of groundwater quality	

4 - Building Local Support

Support for Land Use Controls

Local support is the foundation of successful wellhead protection. Building that support from the ground up is not always easy. To begin, you need to educate local officials and citizens about groundwater. Education will increase community awareness about the value and importance of groundwater. It also will explain the relationship between land use threats and groundwater quality, and enlighten the public about the tangible things they can do to prevent groundwater contamination.

By educating residents about groundwater protection, you will build a constituency for the land use regulations your groundwater source requires. Building local support is an ongoing process that begins now and continues indefinitely. You and others responsible for wellhead protection must be aware of the public endorsement you will need to adopt and implement local regulations. By involving the building inspector, zoning enforcement official, special permit granting authority, board of health, planning board, water supplier, chamber of commerce, and general public early in the process, you will ensure support for completion of an effective wellhead protection program.

Groundwater education also helps to build support for nonregulatory groundwater protection measures such as source controls (e.g. pollution prevention plan), best management practices (BMPs), and good housekeeping practices.

These nonregulatory controls are necessary for addressing existing land uses that threaten drinking water, since zoning covers new land uses exclusively.

Getting Local Approval

In Massachusetts, local government has the authority to regulate land uses and protect groundwater resources. The political climate in a community may be favorable or resistant to changing its bylaws or ordinances. In some towns or cities, it may be difficult to adopt an Aquifer Protection District, Zone II Protection District, or Water Resource District bylaw that includes all the required prohibitions and restrictions.

Adoption of the land use controls at town meeting or by the city council is a key step in the wellhead protection process. You will need strong support to gain community approval for land use controls, particularly if there is opposition to any of the proposed changes or additions.

Think of the preparation for town meeting (or the city council vote on a wellhead ordinance) as "a race to the finish line." Preliminary work should start about one year before you need to reach the finish line. To ensure that all tasks have been completed along the way, develop a plan for town meeting or the city council vote that includes the following:

■ ***Meet with your water commissioners, selectmen or city councilors, and planning board to explain the wellhead protection process and the need for local regulations to protect your groundwater sources. Ask for their help in identifying individuals who might take part in the process. Keep your timeline and approximate costs in mind, if you plan to seek financial assistance. Financing may be available through taxes, fees, loans, bonds, fund transfers, private capital, or fines and penalties.***

■ ***Form a committee, as many successful communities have done. Identify the groups that should be represented on a wellhead protection committee. Make sure your committee is diverse and represents a broad cross-section of "stakeholder" interests. Once a committee is formed, develop clear goals and objectives and meet routinely to maintain strong lines of communication among members.***

■ ***List the tasks that must be done to bring a bylaw to town meeting or an ordinance before the city council. Add groundwater education activities to the list to strengthen your chances for success at town meeting (or with the city council vote). Be realistic in terms of the work that can be accomplished with the financial and human resources available. Try to be specific regarding the tasks you want completed before town meeting (or the city council vote), and develop a timeline for completing all tasks. The following tasks are some you may want to consider in your plan:***

- ***Prepare a warrant for town meeting in consultation with your legal counsel.***



Stakeholders include vulnerable population groups (children, elderly, and people with chronic ailments).

Have an expert available at town meeting to answer questions on how the wellhead protection regulations will impact residential property.

Contact DEP or your consultant prior to town meeting if you are unsure of any of the regulatory requirements in 310 CMR 22.21(2).

- **Conduct a public education meeting or an event, such as a community fair. Make arrangements to have the consultant for your water supplier as a speaker. The consultant should discuss (1) the process of bringing a new or expanded drinking water source on line, (2) the wellhead protection area, (3) the land use controls required, and (4) the basis for them. Use these opportunities to identify areas of potential opposition to the regulations. Identify local concerns and potential questions that may be asked at town meeting or by the city council. If your message is not being received well, you may need to develop a new public education message or modify the plan.**
- **Attend a planning board meeting to review the proposed land use controls before town meeting or the city council vote, and to gain the board's support. Be prepared to answer questions about the implications of these controls on landowners.**
- **Use municipal buildout analysis and the results of a nitrate loading assessment to explain the effect of land use controls.**
- **Develop public education materials, such as articles in the local papers, brochures or fact sheets, public service announcements for cable TV or radio, or a home page on the World Wide Web. Informational displays that can be moved to prominent locations or special events in the community are effective also. Identify funding sources for production of the education materials.**
- **Ask regional and local organizations, such as a water-shed association or the League of Women Voters, to sponsor educational events that cover wellhead protection. For example, watershed groups, such as "Stream Teams" could sponsor an Adopt-a-Well program to expand public awareness.**

Success Story

Stoughton - Local Controls

Stoughton adopted a general bylaw (MGL, ch. 40, s.21) for existing and future land uses in Zone II of all their drinking water supplies. The bylaw requires commercial and industrial operations to have approved management and site plans which minimize threats to groundwater. (An aggressive education campaign by the board of health and town engineer developed support for town approval of this stringent bylaw.) The health agent enforces the bylaw, and a town environmental affairs officer ensures compliance with this and other resource protection regulations.

- ***Solicit the support of local businesses for regulations, particularly the floor drain regulation. Notify business leaders of seminars that focus on groundwater pollution prevention, BMPs, source reduction, and regulations.***
- ***Set up or participate in a household hazardous waste collection day. Provide informational materials that make the "cause and effect connection" between hazardous waste and groundwater contamination.***

Going to Town Meeting or City Council

You are now in the home stretch. To be effective at town meeting or at the city council meeting, you should be prepared to demonstrate broad support for the proposed land use controls. You also should be thoroughly prepared for the questions that you may be asked. The following tips are suggested as part of your strategy:

■ ***Request a support letter from DEP's Drinking Water Program.***

■ ***Invite your watershed association and other organizations on your committee to speak at town meeting or write support letters.***

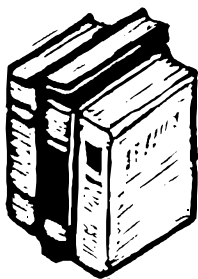
■ ***Provide transportation to town meeting for senior citizens or others who have shown support for the wellhead protection bylaws.***

■ ***Prepare an informational display and fact sheets for people to peruse as they arrive at town meeting.***

■ ***Plan ahead to handle tough questions at town meeting. Be prepared to answer questions on how a particular regulation, such as the impervious surface requirement, will impact residents and businesses. Questions relating to the expansion of nonconforming uses in an Aquifer Protection District are often asked. Note that expansion of nonconforming uses should not be allowed in Zone II areas that are subject to the Massachusetts Drinking Water Regulations, 310 CMR 22.21(2).***

Residents must understand land use controls to support them at town meeting!

- ✓ Design a brochure to explain the need for controls.
- ✓ Include a map and the text of warrant articles.
- ✓ Distribute the brochures prior to the planning board hearing.
- ✓ Ask scout troops or other volunteers to deliver brochures to all voters.
- ✓ Send brochures to public libraries and local forums such as the League of Women Voters' Candidates Night.



Public Education Campaign

Water suppliers need to build local support for wellhead protection. There are many opportunities to do this. Some of the more popular activities are discussed below. Contact your local water works association, Massachusetts Water Works Association (MWWA), New England Water Works Association (NEWWA), regional planning agency, regional watershed association, or civic groups for more ideas.

Open House at Treatment Plant

Drinking Water Week, scheduled in May, is a good time to invite constituents to your treatment plant or water department office. You might plan a poster contest and announce winners during this open house. Give out water mugs marked with your water department insignia and a conservation protection message. Coordinate this event with local schools. Classroom visits and field trips can be an effective way to reach families to explain the importance of drinking water protection. Contact Massachusetts Water Works Association (MWWA) to rent educational program materials.

Mailbag

Bill stuffers and envelope messages are used by many utilities in promoting protection and conservation. The Concord Water Department uses a water conservation bill stuffer. Amherst Water Department uses a "Protect our Water Supply" message on all its envelopes. New England Water Works Association sells generic bill stuffers. The City of Worcester sends "On the Waterfront," a newsletter covering protection and conservation issues.

Films and Videos

Use materials and films available through state agencies and professional associations such as the New England Water Works Association, Massachusetts Water Works

Association, Massachusetts Water Resources Authority, and Massachusetts Riverways Program (see Appendix, p. A.5 - A.8).

Citizens need to know the reasons for the restrictions and how they might impact their property.

Use local groups to publicize the purpose of proposed changes to your zoning regulations that are needed to protect your well recharge area. Armed with facts, citizens are better able to vote intelligently.

Media Campaign

Invite local and regional environmental reporters to your pump station, community fair, and awareness days. Send short press releases to all media outlets when there is something to report or an event to announce. Provide a glossary on wellhead and watershed protection for confusing terms like Zone II. (See Appendix, p. A.3.)

Encourage attendance at town meeting or city council meeting by placing advertisements in community announcements of local papers, weekly shoppers, and transportation carriers.

Gimmicks

Publicize your message using gimmicks!

Book covers, stickers, pencils, book marks, and magnets are available from various waterworks sales representatives. Contact MWWA for listings. (See Appendix, p. A.5.)

Get Out the Wellhead Vote at Town Meeting

Community Fair

Plan a community fair prior to town meeting to discuss your amendments and bylaws for water supply protection. This is a chance for citizens to familiarize themselves with the services offered by your town or city and to understand the issues to be voted on at town meeting.

Let departments choose their own program and extent of participation if it works better. When your town or city hall is small, use a school cafeteria nearby.

Advertise! Community bulletin board announcements in local newspapers are free. Invite involvement of your local or regional environmental reporter. Make sure you send a press release that is short and attention getting. Put up posters in local schools, stores, libraries, and other public spaces. Advertise on community cable T.V. and ask them to cover the fair! Get your local business to cosponsor and donate prizes. When you finish, make sure you publicly thank people for attending and for helping.

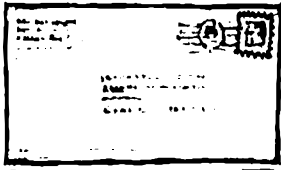
Plan your event at least 3 months in advance of town meeting.

Personally invite key community leaders to increase participation.

NORTON HOLDS A TOWN FAIR

Norton's Town Hall Fair, held prior to the annual town meeting, drew a big crowd. Town officials were available to discuss services, give away shower savers, maps, and prizes donated by local businesses. Kathy Romero, Conservation Agent and Fair coordinator, said people were surprised to find out how many services the town provides to them. Questions on the upcoming votes on the aquifer protection articles also brought out folks.

Sample Letters



Sample Letter 1 - Invitation to Open House at Water Department.

An Open House is an opportunity to discuss informally your wellhead protection plans or to enlist support for an upcoming vote at town meeting. Encourage your watershed association, consultant for water supply development, and planning board members to join you in doing the open house. Copy the letter on colored letterhead and use as a bill stuffer.

April 10, 1997

Aquaville Water Department
200 Archdale Road
Aqua, MA 02222

Dear Customer:

Have you ever wondered where your water comes from and how good it is? The Aquaville Water Department is very interested in providing good water quality for you and the Town of Aqua. We want you to visit our treatment facility at 200 Archdale Road to see our operations and learn about our efforts to protect your drinking water. Please bring a friend and join us at an Open House on Saturday, May 1, 1997, 12:00 - 4:00 PM.

Our Department is planning to put a new well on line in two years. Since we are responsible for protecting this well, we must pass zoning or non-zoning controls in the recharge area around the well. We will discuss our plans for local controls at the Open House.

We are planning to submit amendments to existing zoning bylaws at the next town meeting. We need your support and hope you will attend the town meeting and the Open House.

Please contact me at 617-000-0000 if you have any questions. Thank you!

Cordially,

Dick Johnson, Superintendent

cc: Town Planner - Aquaville Clean Water Association

Sample Letter 2 - DEP support and letter for town meeting.

February 20, 1997

Terry Sylvia, Planner
Town of Yarmouth
1146 Route 28
South Yarmouth, MA 02664

re: Yarmouth - Compliance with Wellhead Protection Requirements for Withdrawal Permit
No. 9P-4-22-351.01, Wells 13,14,17,18,19,23, and 24

Attention: Yarmouth Town Meeting - Article 24, Aquifer Overlay Protection District

Massachusetts' Drinking Water Regulations , 310 CMR 22.21(2), require the adoption of wellhead protection controls for wells subject to water withdrawal permit 310 CMR 36.00. Yarmouth must comply with these mandates as a condition of its Water Withdrawal Permit, 9P-4-22-351.01, issued on February 1, 1992 for public drinking water wells 13, 14, 17, 18, 19, 23, and 24.

The Department supports the adoption of Article 24, section 1, 2, 3, and 4, at the Spring Town Meeting. These amendments will assist Yarmouth in complying with the conditions of its water withdrawal permit.

The Office of Watershed Management, which administers the water withdrawals permits, issued a Notice of Non-compliance to Yarmouth on January 31, 1997, because it failed to meet the wellhead protection requirements of its permit. Modified permit conditions require the adoption of wellhead protection controls by August 1997.

Approximately 40 cities and towns have adopted controls which meet the state wellhead protection standards defined in 310 CMR 22.21. This includes 20 municipalities in the southeast region of the state.

Cordially,

Jude Hutchinson
Wellhead Protection Team Leader, DEP, Boston

Sample Letter 3 - “Best effort” letter from water district to adjacent community.

Dedham-Westwood Water District

50 Elm Street, P.O.Box 9137 • Dedham, MA 02027

March 18, 1996

Planning Board
Canton Town Hall
Canton, MA 02021

Dear Board Members:

I am writing regarding our mutual interest in protecting and preserving the integrity and quality of the water in the Neponset River watershed area of our shared boundaries. The Towns of Dedham and Westwood lost the use of nearly one-third of their water supply in 1979 when contamination closed two of our wells, necessitating the construction of a 7 million dollar treatment plant. Test wells in the area indicated that this contamination most likely migrated from businesses situated in Canton.

Groundwater, of course, does not recognize town boundaries. For this reason, the Dedham-Westwood Water District Commissioners would strongly urge the Town of Canton to implement water resource protection measures as recommended by the Department of Environmental Protection. A 1990 study by the Metropolitan Area Planning Council, the Neponset Basin Water Supply Protection Study, noted that seven of the eight basin communities have water resource protection district bylaws and recommended that Canton incorporate such a bylaw as well into its zoning bylaws. For your information, I have enclosed a map showing the Zone II (zone of contribution) for our public supply wells.

Your consideration of this important matter is appreciated.

Sincerely,

Nan Crossland
Executive Director

Sample Letter 4 - Public awareness letter from public water supplier to constituents.

Dedham-Westwood Water District

50 Elm Street, P.O.Box 9137 • Dedham, MA 02027

July 17, 1995

RE: University Ave., Dartmouth St., Harvard St., Marymount Ave.

Dear Property Owner or Tenant:

Approximately two-thirds of the water supply for the Towns of Dedham and Westwood is drawn from the White Lodge wellfield. These wells are located along the eastern side of University Avenue. An engineering study indicates that the zone of contribution includes both sides of the street from north of Route 128 down to the Canton Street area. Many activities in this area are regulated under Westwood's Water Resource Protection District Bylaw (see attached). In addition, your awareness of protective measures can help to prevent any future contamination of the public water supply. The Dedham-Westwood Water District offers the following suggestions:

1. Use a minimum of herbicides and pesticides on landscaping. Most contain chemicals which could, with excessive use, endanger the water supply.
2. Use a minimum amount of sodium products or substitute calcium chloride for winter use on driveways and in parking areas. Never wash vehicles or heavy equipment on the property.
3. Always dispose of hazardous materials in a responsible manner. Never pour these down a drain or on the ground.
4. Store chemicals in such a way as to contain any spills which might occur. Limit the amount of chemicals stored on-site.
5. Floor drains which are not connected to a holding tank or municipal sewer system are prohibited under Department of Environmental Protection Regulations 310 CMR 27.00.

Your awareness of this sensitive area and your cooperation in its protection will help to ensure the safety and quality of the public water supply for future generations. Thank you.

Sincerely,

Nan Crossland
Executive Director

Getting More Information on Wellhead

Use this form to order many publications mentioned in the guidebook directly from DEP.

Fact Sheets and Brochures

- ☐ ***Impervious Cover - Stormwater Infiltration***
- ☐ ***Industrial Floor Drains: Common Questions about the UIC Program ****
- ☐ ***Wellhead Protection Tips for Small Public Water Systems ****
- ☐ ***Drinking Water Facts - Massachusetts Wellhead Protection Program***
- ☐ ***Model Board of Health Regulations For Private Wells***

Tools

- ☐ ***Application/Checklist For Zoning Officials***
- ☐ ***Hazardous Materials Management: A Community's Guide to Developing and Implementing a Local Regulation to Protect Drinking Water Sources***
- ☐ ***Developing a Local Surface Water Supply Program***
- ☐ ***Guide for Implementing a Local Floor Drain Program***
- ☐ ***Tips for Protecting Your Drinking Water Supply****
- ☐ ***Tips for Preventing Pollution in Service Stations***
- ☐ ***Tips for Preventing Pollution in Hazardous Material Use Storage Areas***
- ☐ ***Nitrogen Loading Computer Model for Zone II's****
- ☐ ***Right of First Refusal: A Tool for Water Supply Protection***

Regulations and Guidelines (not available directly from DEP)

- ☐ ***Drinking Water Regulations: 310 CMR 22.00 +***
- ☐ ***1996 Guidelines and Policies for Public Water Systems: Vol. I, Guidelines*+; Vol.II, Policies+***

Send your completed form to:

***Department of Environmental Protection
Drinking Water Program - 6th Floor
One Winter Street
Boston, MA 02108***

* Documents available on the World Wide Web at <http://www.state.ma.us/dep/brp/dws>.

+ Documents available from the State House Bookstore in Boston @ 617-727-2834

Springfield @ 413-784-1376.

Bureau of Resource Protection Hotline 800-266-1122 or 617-292-5886

5 - Completing the Process

Making a Wellhead Protection Map

When to Prepare a Map



A map will be required to show the wellhead protection areas within a community where land uses are regulated, unless the entire city or town is covered by the regulations. Zoning bylaws generally apply to specific "overlay districts," which must be delineated on zoning maps. When a zoning bylaw is adopted for wellhead protection, an overlay must be prepared for the zoning map. The overlay district provides the link between the zoning regulations (which control high-risk land uses) and the wellhead protection area on a map.

A city or town may decide to delineate a wellhead protection district that is larger, but not smaller, than the Zone II. Many towns adopt a wellhead protection area that corresponds with the DEP approved Zone II; others delineate an Aquifer Protection District (APD) or Water Resource Protection District that corresponds with ground and surface water features in their communities. Consult with your town counsel to ensure enforceability of bylaws in overlay districts with boundaries beyond the Zone II.

Information to Include on the Overlay District Map

- *Location of the well(s);*
- *Zone II (DEP approved), Aquifer Protection District, or Water Resource Protection District;*
- *Municipal Boundaries;*
- *Land features (e.g. roads, lakes);*
- *Date of map approval or amendment at town meeting;*
- *Map scale; and*
- *Approval stamp (town clerk).*

Issues to Consider when Preparing an Overlay District Map

The overlay maps may be prepared as soon as DEP approves the Zone II. An overlay map is essential for implementing the land use controls in discrete wellhead protection areas.

An overlay district map will need revision whenever a new well is proposed and evaluated in the Source Approval Process and when DEP approves changes to the Zone II for expanded wells.

Delineation of wellhead protection boundaries to correspond with the lot lines on an assessor's map may make it easier to implement and enforce the land use controls. Also, the scale of the map must be large enough to identify boundaries easily in the field. Field verification of overlay boundary lines may be worthwhile.

Consider including (within the Aquifer Protection District) the Zone IIs and IWPA's of neighboring communities' wells that extend into your town. The IWPA's for all public supply wells in your town should be included in the APD, even small wells with public uses, such as mobile home parks or schools. Map the areas to be protected on the overlay district map.

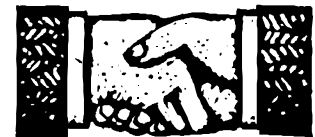
Meeting Best Effort

Meeting the Best Effort Requirement (310 CMR 22.21 (1)(d) and (e))

Application of Best Effort

When the public water supply is privately-owned (water district, water company) or the Zone II of the groundwater supply extends into other cities or towns, use the best effort standard to comply with the wellhead protection requirements. If neither situation applies, you may skip the following guidance.

If you are a municipal water department and the best effort standard applies, please be aware that wellhead protection requirements include: 1) adoption of land use controls within the Zone II area that is located in your community and 2) a demonstration of a best effort to adopt land use controls in all other towns where the Zone II is located.



Best Effort Guidance

When the water supplier is not a municipality, or when the Zone II of the groundwater supply extends into other cities and towns, it may be more difficult to get land use controls adopted. In these circumstances, the Drinking Water Regulations offer a modified compliance standard. A water supplier or municipality must show that it has taken steps and

used its best effort to have all cities and towns (where the Zone II is located) adopt zoning and non-zoning controls.

The goal of the best effort standard is adoption of wellhead protection controls that are consistent with the Drinking Water Regulations, 310 CMR 22.21(2) (a) and (b). Zoning bylaws and maps, general bylaws, and health regulations are the ideal documents to submit to DEP for best effort compliance.

Success Story

Lunenburg Water District

Lunenburg requires permits and groundwater monitoring for all activities that have the potential to contaminate wells. A Bylaw Review Committee meets regularly to review proposed development within the protection district around town wells. The Committee includes the Lunenburg Water District, fire department, board of health, conservation commission and planning board. This cooperative effort has made it easier to implement their wellhead protection bylaw.

However, best effort is considered on a case-by-case basis by DEP. When it is not possible to complete all of the wellhead requirements, a water supplier or municipality should submit letters, minutes of meetings, and other documents to show that a reasonable effort has been made to adopt land use controls everywhere in the Zone II. This information should include, at a minimum, letters requesting adoption of land use controls to planning boards, boards of health, and other applicable authorities in all towns where the Zone II is located. A DEP approved Zone II map also should be sent to those communities for reference.

Certain issues, such as the vulnerability of the water supply, will be considered by DEP when deciding whether the best effort standard has been satisfied. A water supplier might be held to a higher standard when there are significant land use threats in the Zone II or when the land area within the Zone II is extensive.

In some cases, the DEP may request more information to meet best effort. Additional letters from the water supplier to the affected communities may be requested and more emphasis may be given to non-regulatory approaches. As an example, a water supplier could be asked to sponsor an educational

program to increase awareness of wellhead protection in the other towns. DEP staff also may request a meeting to assist communities in achieving compliance with the best effort standard.

Completeness Checklist

The following self-help checklist may be used to verify that the basic requirements of the wellhead protection process have been completed.

If you answer "NO," take the time to address that issue before proceeding to the next question in the checklist.



1. Have you rechecked the land use restrictions and prohibitions in the state Drinking Water Regulations, (310 CMR 22.00), to confirm that the local zoning bylaws, general bylaws, or health regulations are complete (Use cross reference form, Section 3)?



2. Have you adopted a floor drain regulation, (unless DEP indicates that you are grandfathered and do not need to adopt a floor drain regulation for compliance)?



3. Have you submitted the bylaws and floor drain regulation to DEP and received concurrence that the local land use controls comply with the state regulations?



4. Has town meeting or city council adopted the zoning or general bylaws?



5. If subject to the best effort standard (see p. 42),
a) Have you requested that all towns (where the Zone II is located) adopt land use controls?
b) Have you submitted copies of the DEP approved Zone II to those towns or cities, and requested copies of local land use controls (and appropriate maps)?



6. Have those towns or cities responded and do you have sufficient documentation to meet the best effort requirements in the Drinking Water Regulations (see best effort guidance, p. 42).



7. Have you submitted best effort documentation to DEP and received confirmation of compliance?



8. Have the well locations and the DEP approved Zone II been added to the zoning map?



9. Has the zoning map (or revision) been approved at town meeting or city council?



10. Have the bylaws, (with approval of the Attorney General), the floor drain regulation, and the revised zoning map been submitted to DEP for approval?

Wellhead Blues: How to Handle Typical Problems

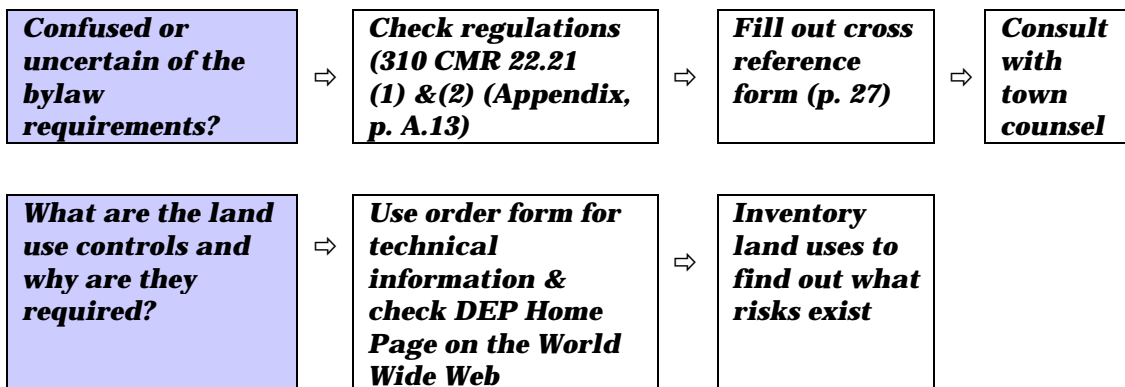


What to do if a Problem Arises

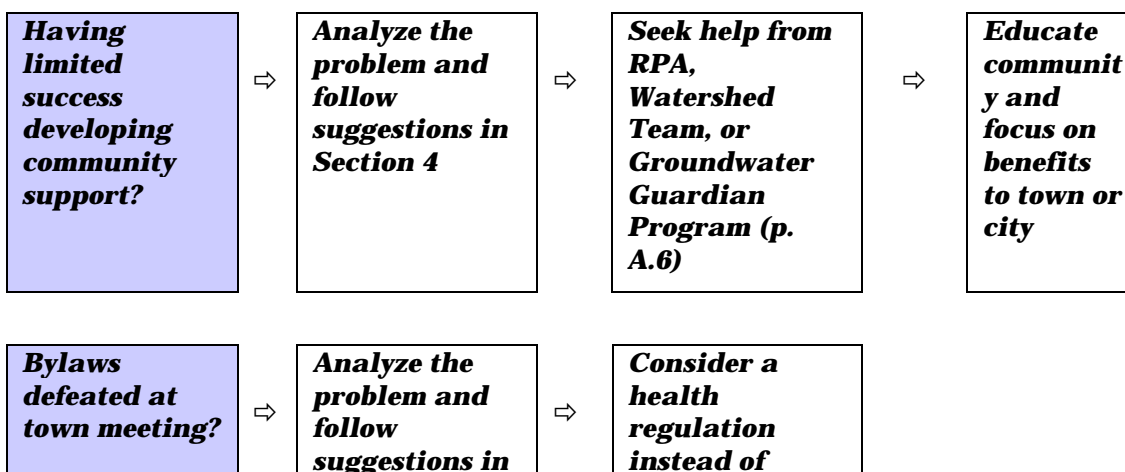
At some point in the wellhead protection process, a question is going to arise, the process may not be proceeding according to your schedule, or a problem will need to be addressed. What do you do?

The guidance below is organized by topic to help you deal with some typical issues on your own. If you can not find the answer you need, contact the regional office of DEP.

Bylaws & Land Use Controls



Community Support

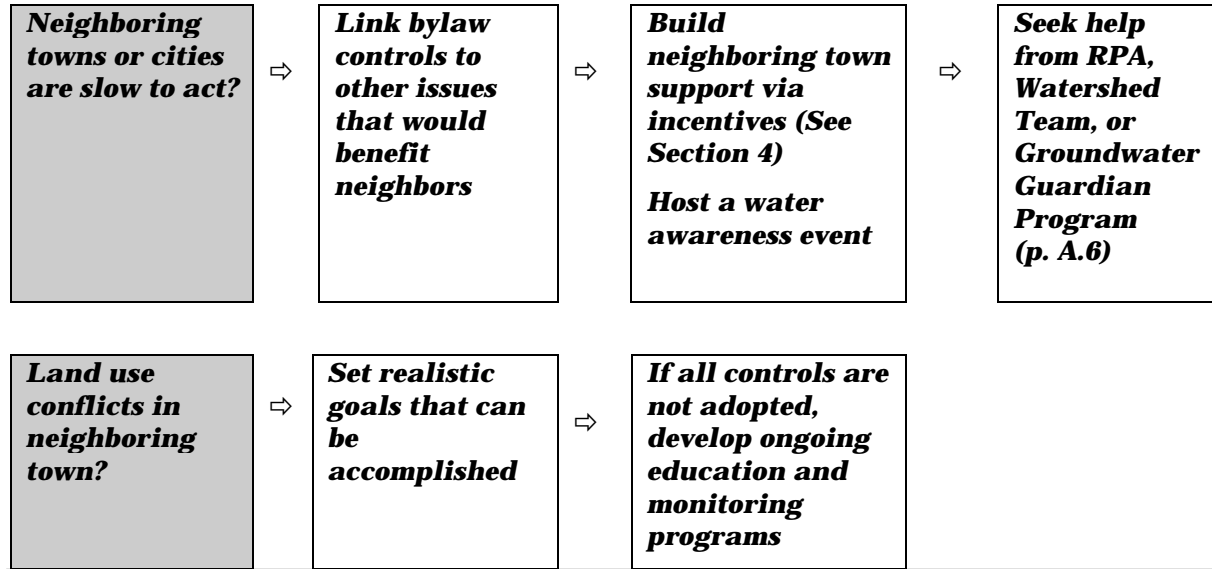




Section 4

zoning bylaw or ordinance

Best Effort



Sudbury Water District

A visionary town planning department and a progressive, concerned water district worked together to adopt a comprehensive *Water Resources Protection District Bylaw* to control land uses in approved Zone II's of privately-owned public water supplies. This bylaw exceeds the best effort standards of the state. The town also requires a nitrate loading analysis to reduce long term threats from nonpoint source pollution. Under this bylaw, expansion of existing non-conforming residences was allowed for a certain period of time.

Appendix

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GLOSSARY OF TERMS

Aquifer: A water bearing layer of permeable material that will yield water in a usable quantity to a well. A geologic formation that can hold, and provide, large quantities of water readily. Aquifers can be confined or unconfined.

Aquifer Protection District: Zoning tool used to delineate and protect water resources. An overlay district which imposes wellhead protection bylaws over the existing underlying zoning.

Best Effort: Privately owned water companies, or water districts, and public water systems whose Zone II recharge area extends into adjacent communities are required to use their best efforts in encouraging municipalities to adopt wellhead protection controls in Zone II areas. Required under Massachusetts Drinking Water Regulations, 310 CMR 22.21(1)(d).

Best Management Practices(BMP's): Structural, nonstructural, and managerial techniques that are recognized to be the most effective and practical means to prevent and reduce nonpoint source pollutants. BMP's should be compatible with the productive use of the resource to which they are applied and should be cost effective.

Hazardous Material: Unprocessed virgin material that is potentially dangerous to human health, safety, welfare, or to the environment.

Hazardous Waste: Byproduct of hazardous or non-hazardous material that is potentially dangerous to human health, safety, welfare, or to the environment.

Impervious Surface: Areas, such as pavement or rooftops, which impede the infiltration of water into the soil.

Interim Wellhead Protection Area: See definition in the Annotated Drinking Water Regulations located in the Appendix.

Non Sanitary Treatment or Disposal Works: Wastewater discharge from industrial and commercial facilities containing wastes from any activity other than the collection of sanitary sewage, including but not limited to, activities specified in the Standard Industrial Classified Codes set forth in 310 CMR 15.004(6).

Non-Zoning Controls: General bylaws, ordinances, and health regulations authorized by constitutional and statutory powers for protecting health, safety and the general welfare of residents. May be used to protect public water supplies from contamination.

Public Water Supplier: See definition in the Annotated Drinking Water Regulations located in the Appendix.

Public Water System: See definition in the Annotated Drinking Water Regulations located in the Appendix.

Recharge Area: Land area over which precipitation infiltrates into the soil and percolates downward to replenish an aquifer.

Safe Drinking Water Act & Amendments: Federal law which requires stringent public drinking water standards, state wellhead protection programs, source water protection area delineations and assessments, and pollution prevention programs.

Source Approval Process: Process by which a public water supplier receives DEP approval to develop or expand a public groundwater source. For wells pumping greater than 100,000 gallons per day, local wellhead regulations are required.

Very Small Quantity Generators: A public or private entity, other than residential, which produces less than 27 gallons (100 kilograms) a month of hazardous waste or waste oil, but not including any acutely hazardous waste defined in 310 CMR 30.136.

Water Management Act: The Massachusetts Water Management Act regulates the amount of water withdrawn from both surface and groundwater sources. The Act consists of a registration and permit program. MGL, Ch. 21G required registration of all water withdrawals in the Commonwealth during 1981 - 1985 and the promulgation of regulations to permit future water withdrawals.

Watershed: An area of land that contributes runoff to one specific delivery point; large watersheds may be composed of several smaller sub-watersheds, each of which contributes runoff to different locations that ultimately combine at a common delivery point.

Water Withdrawal Permit: Required by regulation, 310 CMR 36.00, for systems that pump over 100,000 gallons per day. Permittees must delineate their Zone IIs and comply with wellhead protection requirements of 310 CMR 22.21.

Water Table: The upper level of a saturated zone below the soil surface, often the upper boundary of a water table aquifer. The water table rises and falls according to the season, and the amount of rain and snowmelt that occurs. The water table also rises and falls due to pumping influences.

Wellhead Protection Area: The primary recharge area to a groundwater supply. Defined by hydrogeologic study, it encompasses the Zone I and Zone II of public ground water supplies.

Zone I: See definition in the Annotated Drinking Water Regulations located in the Appendix.

Zone II: See definition in the Annotated Drinking Water Regulations located in the Appendix.

Zone III: See definition in the Annotated Drinking Water Regulations located in the Appendix.

Zoning Controls: See definition in the Annotated Drinking Water Regulations located in the Appendix.

Directory of Services

Here is a listing of organizations that provide services on source water protection to the public.

Planning Services

Regional Planning Agencies

Assistance with the process of adopting bylaws, land use evaluation, mapping, regional coordination, and outreach.

Most communities belong to 1 of 13 agencies. Check the following list for your RPA:

Barnstable County Health and Environment Dept. (BCHED)
Barnstable 508-362-2511

Berkshire County Regional Planning Commission (BCRPC)
Pittsfield 413-442-1521

Cape Cod Commission (CCC)
Barnstable 508-362-3828

Central Massachusetts Regional Planning Commission (CMRPC)
Worcester 508-756-7717

Franklin Regional Council of Governments Planning Commission
Greenfield 413-774-3167

Martha's Vineyard Commission (MVC)
Oak Bluffs 508-693-3453

Merrimack Valley Planning Commission (MVPC)
Haverhill 978-374-0519

Metropolitan Area Planning Council (MAPC)
Boston 617-451-2770

Montachusett Regional Planning Commission (MRPC)
Fitchburg 978-345-7376

Nantucket Planning and Economic Development Comm. (NP&EDC)
Nantucket 508-228-7237

Northern Middlesex Council of Governments (NMCOG)
Lowell 978-454-8021

Old Colony Planning Council (OCPC)
Brockton 508-583-1833

Pioneer Valley Planning Commission (PVPC)
West Springfield 413-781-6045

Southeastern Regional Planning and Economic Development District (SRPEDD)

Taunton 508-824-1367

Watershed Associations

Contact for watershed resource issues, protection, water sampling, data collection, recreational & educational events. Contact Riverways Program for listing. 617-727-1614

MA Watershed Coalition

Supports watershed associations' protection goals and state initiatives. Ed Himlan, President. 978-534-0379

EOEA Growth Planning

Contact for growth planning issues. John Lipman 617-727-9800 x223

Educational Resources

Department of Fisheries and Wildlife, Riverways Program

Contact for: stream ecology, shoreline surveys, adopt a stream, urban rivers, land uses, habitat protection, riparian land, and Rivers Newsletter. 617-727-1614 x360

National Drinking Water Clearing House

Contact for drinking water information, "On Tap" newsletter, telephone assistance, low cost educational products and training. 800-624-8301

New England Interstate Educational Training Center

Contact for Groundwater Curriculum, "That Magnificent Ground Water Connection," k-6, & 7-12 @ \$25.00 /guide 207-767-2539

MA Water Resources Authority

Contact for water supply, conservation, and wastewater curriculum, newsletter, and poster contests. 617-241-4643

MA Water Works Association

Contact for educational materials, operator training, and newsletter. 508-692-0199

New England Water Works Association

Contact for training programs for operator certification, public relations, and educational materials. 508-478-6996

University of Massachusetts Extension, Natural Resources and Environmental Conservation Program

Contact for watershed protection, public education materials, wastewater management, septic systems, capacity building, and non-point source pollution. 413-545-2188

Technical Assistance

GroundWater Guardian Program

Supports, recognizes , and connects communities taking voluntary, pro-active steps towards groundwater protection. 800-858-4844

Northeast Rural Water Association

Serves water and wastewater systems with a population of 10,000 or less, source protection plans and waivers, workshops, and drinking water protection area signs. 802-660-4988

Metropolitan District Commission

Contact for watershed protection planning in Wachusett, Ware & Quabbin watersheds. 508-792-7423

Rural Community Assistance Program/RHI

Contact for general water supply issues, waivers, small systems, and wellhead protection. 978-297-5300

Massachusetts Land Trust Coalition

Trustees of the Reservations. Contact for water conservation and land acquisitions. 978-524-1863

Natural Resource Conservation Service (formerly SCS)

Contact for soil conservation and erosion assistance and maps. Central Area 413-253-4350

DEP Watershed Teams

Watershed permits, basin assessments, land use issues, testing, technical review. See attached listing of watershed team leaders in MA.

DEP Source Protection Program

Contact for compliance with state source protection mandates. 617-292-5770

Products/ Gimmicks

Channing Bete Company

Contact for illustrated adult and childrens' booklets. 800-628-7733

The Vernon Company

Contact for a wide variety of promotional gimmicks such as calendars, signs, magnets, and mugs. 800-941-9412 or 617-327-1323

Government

DEP Infoline

***Contact for general permitting, compliance and fees information. 617-338-2255
Outside 617 area code: 800-462-0444***

DEP Worldwide Web Home Page

Visit the BRP home page for regulations, model bylaws, and source protection fact sheets. <http://www.magnet.state.ma.us/dep>

DEP- Regional Service Centers

Contact for general DEP information on all programs and file searches.

Springfield 413-784-1100 x214

Worcester 508-792-7683

Woburn 781-935-2160 x112

Lakeville 508-946-2714

Safe Drinking Water Act Hot Line

Contact for information on water quality, drinking water, technical publications, public education materials, and source protection planning.

800-426-4791 9:00 AM - 5:00 PM EST

U.S. Environmental Protection Agency - Region 1

Source Water Protection Program

Contact for New England resource protection issues, inter-state resource protection, educational materials, and national legislation. 617-565-4721

Zoning Hotline - MA Executive Office of Communities and Development (EOCD)

Contact for zoning questions, procedural issues, and grandfathering.

800-392-6445 or 617-727-3197

Dep Watershed Team Leaders

Northeast Regional Office 781-932-7600

<i>Boston Harbor/Mystic</i>	<i>John Zajac</i>	<i>932-7748</i>
<i>Boston Harbor/Neponset</i>	<i>Phil DePietro</i>	<i>932-7782</i>
<i>Charles</i>	<i>Rachel Freed</i>	<i>932-7783</i>
<i>Ipswich</i>	<i>John Felix</i>	<i>932-7675</i>
<i>Merrimack</i>	<i>Jim Sprague</i>	<i>932-7780</i>
<i>North Coastal</i>	<i>Larry Gil</i>	<i>932-6746</i>
<i>Parker</i>	<i>Ralph Perkins</i>	<i>932-7786</i>
<i>Shawsheen</i>	<i>Libby Sabounjian</i>	<i>932-7787</i>
<i>Concord</i>	<i>Mark Casella</i>	<i>932-7771</i>

Southeast Regional Office 508-947-6557

<i>South Coastal</i>	<i>Larry Dayian</i>	<i>946-2769</i>
<i>Cape Cod</i>	<i>Liz Kouloheras</i>	<i>946-2810</i>
<i>Buzzards Bay</i>	<i>Jeffrey Gould</i>	<i>946-2757</i>
<i>Ten Mile and Islands</i>	<i>David Burns</i>	<i>946-2738</i>
<i>Taunton</i>	<i>Jack Hamm</i>	<i>946-2700</i>

Central Regional Office 508-792-7650

<i>Millers, Chicopee, French, and Quinebaug</i>	<i>John Desmond</i>	<i>792-7650 x3710</i>
<i>Blackstone and Nashua</i>	<i>Bob Kimball</i>	<i>792-7650 x3722</i>
<i>Merrimack, Concord, and Charles</i>	<i>Phil Nadeau</i>	<i>792-7650 x3728</i>

Western Regional Office 413-784-1100

<i>Housatonic, Hudson and Deerfield</i>	<i>Kurt Boisjolie</i>	<i>784-1100 x284</i>
<i>Farmington, Westfield, Western Connecticut, and Quinebaug</i>	<i>Larry Golonka</i>	<i>784-1100 x237</i>
<i>Chicopee, Millers, and Eastern Connecticut</i>	<i>Bob McCollum</i>	<i>784-1100 x228</i>

Public Water Systems in Compliance with Wellhead Protection

310 CMR 22.21

for Some or All of Their Wells
May 15, 1997

Department of Environmental Protection Central Regional Office (CERO)

Acton Water District ☐
Dudley Water Department
Holden Water Department
Hudson Water Division
Leicester Water District

Lunenburg Water District ☐
Pepperell Water Department
Sterling Water Department
Westborough Water Department
Westford Water Department 3333

Department of Environmental Protection Northeast Regional Office (NERO)

Ashland Water Department
Canton Water Department
Dedham-Westwood Water District ☐
Georgetown Water Department

Lynnfield Water District ☐
Needham Water Department
Norfolk Water Department
Sudbury Water District

Department of Environmental Protection Southeast Regional Office (SERO)

Bourne Water District
Bridgewater Water Department
Buzzards Bay Water District
Brewster Water Department
Chatham Water Department
Dartmouth Water Department
Dennis Water District
Easton Water Department
Foxboro Water Department
Hanson Water Department
Harwich Water Department
Kingston Water Department
Mashpee Water District

Mattapoisett Water Department
Nantucket Water Department
North Raynham Water District ☐
Norton Water Department
Onset Water District ☐
Orleans Water Department
Plymouth Water Department
Sandwich Water District ☐
Seekonk Water District ☐
Stoughton Water Department
Swansea Water District ☐
Wareham Fire District ☐
Yarmouth Water Department

☐ - **Meets Best Effort**

Massachusetts Regulatory Controls in Zone II

Wellhead Protection Regulatory Controls Within Zone II Referenced Regulations		
CMR CITED	TITLE OF REGULATION	SPECIFIC SECTION CITED
310 CMR 22.00	Drinking Water Regulations	310 CMR 22.21
310 CMR 16.00	Site Assignment Regulations for Solid Waste Facilities	310 CMR 16.40
310 CMR 19.00	Solid Waste Management Regulations	310 CMR 19.021 310 CMR 19.038
990 CMR 5.00	Council Determination Whether a Proposal is Feasible and Deserving of State Assistance	990 CMR 5.04
310 CMR 30.00	Hazardous Waste	310 CMR 30.667
310 CMR 27.00	Underground Water Source Protection	310 CMR 27.06
Draft 310 CMR 41.00	Low-Level Radioactive Waste Facility Site Selection Criteria Regulations	310 CMR 41.10 310 CMR 41.20
314 CMR 5.00	Ground Water Discharge Permit Program	314 CMR 5.03 314 CMR 5.06 314 CMR 5.07
310 CMR 40.00	Massachusetts Contingency Plan	310 CMR 40.031
314 CMR 6.00	Ground Water Quality Standards	314 CMR 6.06 314 CMR 6.07
310 CMR 15.00	State Environmental Code (Title V)	310 CMR 15.211 310 CMR 15.303 310 CMR 15.304
333 CMR 11.00	Rights of Way Management	333 CMR 11.03 333 CMR 11.04
333 CMR 12.00	Protection of Groundwater Sources for Public Drinking Water Supplies From Non-point Source Pesticide Contamination	333 CMR 12.03
314 CMR 15.00	The Prevention and Control of Oil Pollution in the Waters of the Commonwealth	314 CMR 15.03 314 CMR 15.05 314 CMR 15.06
310 CMR 10.00	Wetlands Protection Act Regulations	310 CMR 10. 53
310 CMR 11.00	Massachusetts Environmental Policy Act	310 CMR 11.26
350 CMR 11.00	Watershed Protection Act Regulations	350 CMR 11.04

***For complete texts of the
above rules and regulations, go to:***

**[http://www.state.ma.us/dep/
brp/dws/dwspubs/htm#310cmr22](http://www.state.ma.us/dep/brp/dws/dwspubs/htm#310cmr22)**